

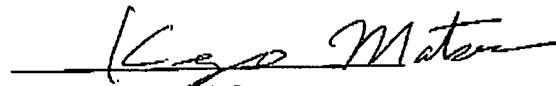
**CERTIFICATE**

**Japanese Patent Application No. 2002-183789**

**Filing Date: June 25, 2002**

I, Kenzo Matsuura, of 39F, 6-1 Nishi-shinjuku 2-chome, Shinjuku-ku, Tokyo 163-0239 Japan hereby declare that I am the translator of the documents attached and certify that the following is to the best of my knowledge and belief a true and correct translation.

Signed this 20th day of October, 2006

A handwritten signature in black ink, appearing to read "Kenzo Matsuura", is written over a horizontal line.

Kenzo Matsuura  
Patent Attorney



1

JAPAN PATENT OFFICE

This is to certify that the annexed is a true copy  
of the following application as filed with this Office.

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Applicant: Fuji Photo Film Co., Ltd.

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[Enclosure] Drawing 1

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1

[Title of the Document] Specification

[Title of the Invention] DIGITAL CAMERA SYSTEM

[Claims for the Patent]

[Claim 1]

5 A digital camera system in which a digital camera is connected to communicate with external equipment when the camera is mounted on a cradle, wherein the cradle comprises:

a tilt angle changing device which changes a tilt angle of the digital camera mounted on the cradle;

10 a determination device which determines a change in the tilt angle of the digital camera by the tilt angle changing device; and

a command device which outputs a function change signal to the digital camera according to a determination result of the determination device,

15 wherein the digital camera changes functions for the external equipment according to the function change signal received from the command device.

[Claim 2]

A digital camera system in which a digital camera is connected to communicate with external equipment when the camera is mounted on a cradle, wherein the cradle comprises:

20 a mounting unit on which the digital camera can be mounted from both front and back sides thereof;

a determination device which determines an orientation of the digital camera mounted on the mounting unit; and

25 a command device which outputs a function change signal to the digital camera according to a determination result of the determination device,

wherein the digital camera changes functions for the external equipment according to the function change signal received from the command device.

[Claim 3]

30 A digital camera system in which a digital camera is connected to communicate with external equipment when the camera is mounted on a cradle, wherein the cradle comprises a mounting unit on which the digital camera can be mounted from both front and back sides thereof, and the digital camera comprises a determination device which

determines an orientation thereof when mounted on the mounting unit of the cradle, and wherein functions for the external equipment are changed according to a determination result of the determination device.

[Detailed Description of the Invention]

5 [0001]

[Field of the Invention]

The present invention relates to a digital camera system, and more specifically to a digital camera system in which a digital camera is connected to external equipment such as a personal computer via a cradle.

10 Description of the Related Art

[0002]

[Conventional Art]

A digital camera can be connected to a personal computer so that a shot image data can be fetched to the personal computer.

15 [0003]

Generally, a cable is used in connecting a personal computer to a digital camera. However, a connection using a cable is a troublesome and laborious job.

[0004]

Accordingly, a camera system of connecting a digital camera to a personal  
20 computer using a cradle is proposed to simplify the job of connecting a personal computer to a digital camera (Japanese Patent Application No. 2001-8067). The system enables a digital camera to be connected to a personal computer by mounting the digital camera on a cradle connected to the personal computer through a cable.

[0005]

25 Recently, a digital camera has been operated generally in the two communications modes with a personal computer, that is, a storage mode in which the digital camera functions as a card reader, and a PC camera mode in which the digital camera functions as a PC camera. In the storage mode, image data recorded on a memory card is appropriately read and transmitted to the personal computer. In the PC camera mode,  
30 motion picture data currently being captured is continuously transmitted to the personal computer so that a video conference, etc. can be realized.

[0006]

[Problems to be Solved by the Invention]

However, in the camera system using a conventional cradle, the mode in which communications are established with a personal computer is set on the camera side. Therefore, the digital camera is to be mounted on the cradle after setting the communications mode, thereby causing low operability. Furthermore, there has been the problem that the settings of the current communications mode cannot be obtained until the settings on the camera side are checked.

[0007]

The present invention has been developed to solve the above-mentioned problems, and aims at providing a high-operability digital camera system.

[0008]

[Means for Solving the Problems]

In order to attain the above-mentioned objects, the invention according to claim 1 is directed to a digital camera system in which a digital camera is connected to communicate with external equipment when the camera is mounted on a cradle, wherein the cradle comprises: a tilt angle changing device which changes a tilt angle of the digital camera mounted on the cradle; a determination device which determines a change in the tilt angle of the digital camera by the tilt angle changing device; and a command device which outputs a function change signal to the digital camera according to a determination result of the determination device, wherein the digital camera changes functions for the external equipment according to the function change signal received from the command device.

[0009]

According to the present invention, the functions of the digital camera can be switched for the external equipment according to the tilt angle of the digital camera mounted on the cradle. Thus, laborious setting operations are eliminated, and the operability can be improved. Additionally, according to the tilt angle of the digital camera mounted on the cradle, the current settings can be immediately checked.

[0010]

In order to attain the above-mentioned objects, the invention according to claim 2 is also directed to a digital camera system in which a digital camera is connected to communicate with external equipment when the camera is mounted on a cradle, wherein

the cradle comprises: a mounting unit on which the digital camera can be mounted from both front and back sides thereof; a determination device which determines an orientation of the digital camera mounted on the mounting unit; and a command device which outputs a function change signal to the digital camera according to a determination  
5 result of the determination device, wherein the digital camera changes functions for the external equipment according to the function change signal received from the command device.

[0011]

According to the present invention, the functions of the digital camera can be  
10 switched for the external equipment according to the orientation of the digital camera mounted on the cradle. Thus, laborious setting operations are eliminated, and the operability can be improved. Additionally, according to the orientation of the digital camera mounted on the cradle, the current settings can be immediately checked.

[0012]

15 In order to attain the above-mentioned objects, the present according to claim 3 is also directed to a digital camera system in which a digital camera is connected to communicate with external equipment when the camera is mounted on a cradle, wherein the cradle comprises a mounting unit on which the digital camera can be mounted from both front and back sides thereof, and the digital camera comprises a determination  
20 device which determines an orientation thereof when mounted on the mounting unit of the cradle, and wherein functions for the external equipment are changed according to a determination result of the determination device.

[0013]

According to the present invention, the functions of the digital camera can be  
25 switched for the external equipment according to the orientation of the digital camera mounted on the cradle. Thus, laborious setting operations are eliminated, and the operability can be improved. Additionally, according to the orientation of the digital camera mounted on the cradle, the current settings can be immediately checked.

[0014]

30 [Embodiments of the Invention]

The preferred embodiments of the digital camera system according to the present invention are described below by referring to the attached drawings.



[0015]

Figure 1 is a perspective view showing an embodiment of the digital camera system according to the present invention. As shown in Figure 1, the digital camera system according to the present embodiment is configured by a digital camera 10 and a cradle 100. The cradle 100 is connected to a personal computer 200 through a communications cable (USB cable in the present embodiment) 210 for bidirectional communications.

[0016]

Figures 2 and 3 are front and back views respectively of the appearance of the digital camera 10 and the cradle 100.

[0017]

As shown in Figure 2, there are a taking lens 12, an electric flash light 14, a finder window 16, etc. on the front of the digital still camera 10. As shown in Figure 3, there are a finder 18, a cross button 20, a menu/OK button 22, a cancel button 24, a liquid crystal monitor 26, etc. on the back of the digital camera 10. On the top surface of the digital camera 10, there are a shutter-release button 28, a power button 30, a mode switch 32, a playback button 34, and a reverse button 36 as shown in Figure 4. As shown in Figure 5, there is a camera connector 38 at the central position on the bottom surface of the digital camera 10.

[0018]

The mode switch 32 arranged on the top surface of the digital camera 10 functions as a switch for changing modes in the digital camera 10. The digital camera 10 is set in the shooting mode or a playback mode by sliding the mode switch 32. The playback button 34 and the reverse button 36 arranged on the top surface of the digital camera 10 function as buttons for designating the forward and reverse of a playback image in the playback mode.

[0019]

On the other hand, the cross button 20 arranged on the back of the digital camera 10 functions as a button for entering the designation in the corresponding four directions, and the cross button 20 is used to select a menu item on the menu screen or various setting items from the corresponding menus. The menu/OK button 22 is used in displaying a menu screen, and determining and executing selected items, etc. The

cancel button 24 is used in canceling an item selected on the menu or returning to the operation status before the current status. The liquid crystal monitor 26 is used as a monitor for playing back a shot image and as a display screen of the menu. In the shooting mode, it is used as an electronic view finder for check of the angle of view.

5 [0020]

The cradle 100 is configured mainly by a cradle body 102 and a camera mounting unit 104 supported as swayable on the cradle body 102 as shown in Figures 2, 3, and 6.

[0021]

10 A recess 106 is formed on the top surface of the cradle body 102. In the recess 106, the camera mounting unit 104 through which the digital camera 10 is mounted is accommodated. On the front of the cradle body 102, the power button 30 is arranged as shown in Figure 2. On the back of the cradle body 102, a DC jack 108 and a USB jack 110 are mounted as shown in Figure 3.

[0022]

15 The camera mounting unit 104 is formed as a square plate so that the bottom of the digital camera 10 can be correctly engaged, and a cradle connector 112 is provided at the center of the bottom of the camera mounting unit 104. When the digital camera 10 is mounted on the camera mounting unit 104, the camera connector 38 arranged on the bottom of the digital camera 10 is connected to the cradle connector 112.

20 [0023]

A bearing member 114 is provided below the camera mounting unit 104, and the bearing member 114 is supported by a shaft 118 provided in the recess 106. The camera mounting unit 104 sways on the shaft 118 in the recess 106.

[0024]

25 An inner side front 106A and an inner side back 106B of the recess 106 of the cradle body 102 are formed as inclined by predetermined angles, respectively, and the camera mounting unit 104 swayably supported is set in contact with the inner side front 106A or the inner side back 106B. By the camera mounting unit 104 in contact with the inner side front 106A or the inner side back 106B, the digital camera 10 mounted on the  
30 camera mounting unit 104 is held as tilted at the predetermined angle relatively to the surface on which the cradle 100 is placed. At this time, the digital camera 10 is held as tilted forward when the camera mounting unit 104 is in contact with the inner side front

106A of the recess 106 as shown with the broken lines in Figure 6, or is held as tilted backward when the camera mounting unit 104 is in contact with the inner side back 106B as shown with the solid lines in Figure 6. Thus, the tilt angle is changed.  
[0025]

5 The inner side front 106A and the inner side back 106B of the recess 106 are respectively provided with a front switch 122A and a back switch 122B. Each switch is turned on by the camera mounting unit 104 when the camera mounting unit 104 touches each inner side, and is turned off when it is off each inner side. That is, the front switch 122A is turned on by being pushed with the front of the camera mounting unit 104 by the  
10 camera mounting unit 104 touching the inner side front 106A, while the back switch 122B is turned on by being pushed with the back of the camera mounting unit 104 by the camera mounting unit 104 touching the inner side back 106B. The ON/OFF signal from the front switch 122A and the back switch 122B is outputted to a switch determination circuit 124 (see Figure 7). The switch determination circuit 124 receives  
15 the ON/OFF signal from the front switch 122A and the back switch 122B to determine the current holding status of the digital camera 10.  
[0026]

Figure 7 is a block diagram showing the outline of the inner circuit of the digital camera 10 and the cradle 100.

20 [0027]

As shown in Figure 7, the digital camera 10 is configured by an image-capturing unit 52 and a signal processing unit 54. The image-capturing unit 52 comprises the taking lens 12, an iris 58, and a solid-state image pickup device 60, and captures a subject image according to an instruction from the signal processing unit 54. The  
25 solid-state image pickup device 60 is configured by, for example, a CCD. The CCD captures an image by a series of operations of accumulating, transferring, and discharging the electric charge on the photoreceiving surface thereof.  
[0028]

The signal processing unit 54 fetches an image signal from the image-capturing unit 52 through an amplifier 64 under the control of a system controller 62, and an A/D  
30 converter 66 converts the signal into a digital signal. A digital signal processing unit 68 performs predetermined signal processing (white-balance adjustment, gamma correction,

chrominance difference signal processing, etc.), and then a compressing unit 70 performs a data compressing process. The compressed digital image data is recorded through a memory controller 80 on a memory card 82 inserted in a card slot.

[0029]

5       The power button 30, the DC jack 108, the USB jack 110, and the switch determination circuit 124 of the cradle 100 are directly connected to corresponding terminals in the cradle connector 112 through wiring.

[0030]

10       When the digital camera 10 is mounted on the cradle 100, the USB jack 110 of the cradle 100 is connected to a USB controller 72 of the digital camera 10 through the cradle connector 112 and the camera connector 38. When the system controller 62 detects the USB connection while the digital camera 10 is powered up, the system controller 62 automatically sets the operation mode of the digital camera 10 in the USB mode, and starts the USB communications with the personal computer 200 through the  
15   USB controller 72.

[0031]

20       The DC jack 108 is connected to a charging circuit and a switch circuit 74 in the digital camera 10 through the cradle connector 112 and the camera connector 38. When power of a direct current is applied from an AC adapter (not shown) to the DC jack 108, the direct current power is provided for the charging circuit and the switch circuit 74. The charging circuit and the switch circuit 74 starts a charging operation on a rechargeable battery 76 when the direct current power is applied while the digital camera 10 is powered down, and stops the charging operation when the rechargeable battery 76 is fully charged. On the other hand, the charging circuit and the switch circuit 74  
25   performs the switching process at a command from the system controller 62 such that the above-mentioned charging operation is not be performed while the digital camera 10 is powered up, and that the direct current power inputted through the DC jack 108 is supplied to a DC-DC converter 78. The DC-DC converter 78 generates various types of voltage power source requested by each circuit in the digital camera 10 from the inputted  
30   direct current power, and provides the power for each circuit in the digital camera 10.

[0032]

The switch determination circuit 124 outputs a determination signal indicating the holding status of the digital camera 10 mounted on the cradle 100 to the system controller 62 through the cradle connector 112 and the camera connector 38.

[0033]

5 As described above, when the system controller 62 of the digital camera 10 detects the USB connection while the digital camera 10 is powered up, the system controller 62 automatically sets the operation mode of the digital camera 10 in the USB mode. If the USB mode is set, the digital camera 10 functions as appliances of two different device classes on the connected personal computer 200.

10 [0034]

That is, the digital camera 10 has the storage mode in which it functions as a card reader for reading and writing data on the memory card 82 and the PC camera mode in which it functions as a PC camera for transmitting a signal of a picture being shot for use in a video conference, etc. in real time.

15 [0035]

Then, the digital camera 10 selects the storage mode or the PC camera mode in the USB mode according to the tilt angle of the digital camera 10 mounted on the cradle 100. That is, when the system controller 62 of the digital camera 10 detects forward tilt by the inputted signal from the switch determination circuit 124, the system controller 62 switches the mode into the storage mode. When the system controller 62 detects backward tilt, the system controller 62 switches the mode into the PC camera mode.

[0036]

Thus, in the digital camera system according to the present embodiment, the storage mode and the PC camera mode can be automatically switched by changing the tilt angle of the digital camera 10 mounted on the cradle 100, thereby eliminating the laborious settings on the camera side, and improving the operability.

[0037]

Additionally, the user can check the current setting mode only by checking the posture of the digital camera 10 mounted on the cradle 100.

30 [0038]

10

The method of detecting the switch of tilt angles of the digital camera 10 is not limited to the method according to the above-mentioned embodiment, but can be a detecting method in another system.

[0039]

5        Figure 8 is a front view of the appearance of the digital camera 10 and a cradle 300 according to the second embodiment of the digital camera system of the present invention.

[0040]

10        As shown in Figure 8, in the digital camera system according to the second embodiment, the digital camera 10 can be mounted on the cradle 300 with facing either forward and backward with respect to the cradle 300. Then, according to the direction of the digital camera 10 mounted on the cradle 300, the storage mode and the PC camera mode of the USB-connected digital camera 10 can be switched.

[0041]

15        On the top surface of the cradle 300, a mounting unit 302 on which the digital camera 10 is mounted is formed, and the cradle connector 112 is provided at the center of the bottom surface of the mounting unit 302.

[0042]

20        On the bottom surface of the mounting unit 302, a pair of holes 304A and 304B are formed symmetrically about the cradle connector 112 as shown in Figures 8 and 9. The holes 304A and 304B are provided with switches 306A and 306B, respectively.

[0043]

25        On the other hand, on the bottom surface of the digital camera 10, a projection 308 is formed on the right-hand side as viewed from the front as shown in Figures 8 and 9. When the digital camera 10 is mounted on the cradle 300 with the front face directed forward, the projection 308 is engaged in the right hole 304A of the cradle 300 and presses the right switch 306A. When the digital camera 10 is mounted on the cradle 300 with the back face directed forward, the projection 308 is engaged in the left hole 304B of the cradle 300 and presses the left switch 306B.

30        [0044]

Each of the switches 306A and 306B is turned on by a press by the projection 308, and is turned off by a release from the projection 308. An ON/OFF signal is outputted

from each of the switches 306A and 306B to the switch determination circuit 124. The switch determination circuit 124 determines the current holding status (front or back) of the digital camera 10 by receiving the ON/OFF signal from the switch 306A or 306B.

Then, a determination signal indicating the holding status of the digital camera 10

5 mounted on the cradle 300 is outputted to the system controller 62 of the digital camera 10 through the cradle connector 112 and the camera connector 38.

[0045]

Like the cradle 100 according to the above-mentioned first embodiment, the cradle 300 is provided with the power switch, the DC jack, the USB jack, etc. If the  
10 digital camera 10 is mounted on the cradle 300, the USB jack of the cradle 300 is connected to the USB controller 72 of the digital camera 10 through the cradle connector 112 and the camera connector 38, and the DC jack is connected to the charging circuit and the switch circuit 74 through the cradle connector 112 and the camera connector 38 as the cradle 100 according to the first embodiment.

15 [0046]

With the digital camera system according to the second embodiment with the above-mentioned configuration, when the digital camera 10 is mounted on the cradle 300 with the front facing forward, the projection 308 on the bottom of the digital camera 10 is engaged in the right hole 304A of the cradle 300 and the right switch 306A is turned  
20 on.

[0047]

By receiving the ON signal from the right switch 306A, the switch determination circuit 124 determines that the digital camera 10 is mounted with the front facing forward, and outputs to the system controller 62 of the digital camera 10 a signal for  
25 setting the mode of the digital camera 10 in the PC camera mode. Upon receipt of the inputted signal from the switch determination circuit 124, the system controller 62 of the digital camera 10 sets the mode of the digital camera 10 in the PC camera mode.

[0048]

On the other hand, if the digital camera 10 is mounted on the cradle 300 with the  
30 back facing forward, then the projection 308 on the bottom of the digital camera 10 is engaged in the left hole 304B of the cradle 300, and the left switch 306B is turned on.

[0049]

By receiving the ON signal from the left switch 306B, the switch determination circuit 124 determines that the digital camera 10 is mounted with the back facing forward, and outputs to the system controller 62 of the digital camera 10 a signal for setting the mode of the digital camera 10 in the storage mode. Upon receipt of the inputted signal  
5 from the switch determination circuit 124, the system controller 62 of the digital camera 10 sets the mode of the digital camera 10 in the storage mode.  
[0050]

Thus, in the digital camera system according to the present embodiment, the storage mode and the PC camera mode can be automatically switched according to the  
10 direction of the digital camera 10 mounted on the cradle 300, thereby eliminating the laborious operations on the camera side, and improving the operability.  
[0051]

Furthermore, the user can check the currently set mode of the digital camera 10 only by checking the direction of the digital camera 10 mounted on the cradle 300.  
15 [0052]

The system of determining the direction of the mounted digital camera 10 is not limited to the system according to the above-mentioned embodiment, but can be any other appropriate systems.  
[0053]

According to the present embodiment, the direction of the mounted digital camera 10 is determined using the switches 306A and 306B provided on the cradle 300. However, it can be determined by the digital camera 10. For example, the camera connector can be provided with the function of determining the direction of the mounted digital camera 10 so that the storage mode and the PC camera mode can be switched  
25 according to the determination result.  
[0054]

Figure 10 shows sectional views of the side showing the configuration of the digital camera 10 and a cradle 400 according to the third embodiment of the digital camera system of the present invention.  
30 [0055]

As shown in Figure 10, in the digital camera system according to the third embodiment, a foldable leg 402 is provided on the bottom of the cradle 400 so that the



tilt angle of the digital camera 10 mounted on the cradle 400 can be varied. By folding and extending the foldable leg 402, the storage mode and the PC camera mode of the USB-connected digital camera 10 can be switched.

[0056]

5 A mounting unit 404 on which the digital camera 10 is mounted is provided on the top surface of the cradle 400, and a cradle connector (not shown) is provided at the center of the bottom of the mounting unit 404.

[0057]

10 On the other hand, a recess 406 is formed on the bottom of the cradle 400, and the foldable leg 402 can be stored in the recess 406. The base portion of the foldable leg 402 is provided with a rotation axis 408 supported by a bearing 410 provided in the recess 406, through which the foldable leg 402 is supported as swayable.

[0058]

15 A switch 412 is provided in the recess 406. The switch 412 is turned off by a press by the foldable leg 402 when the foldable leg 402 is folded, and is turned on by a release from the press when the foldable leg 402 is extended. The ON/OFF signal of the switch 412 is outputted to the switch determination circuit 124.

[0059]

20 The switch determination circuit 124 determines the holding status of the digital camera 10 mounted on the cradle 400 by receiving the ON/OFF signal from the switch 412.

[0060]

25 That is, as shown in Figure 10(a), the switch determination circuit 124 detects that the foldable leg 402 is extended by receiving the ON signal from the switch 412, and determines that the digital camera 10 is held as tilted. By receiving the ON signal from the switch 412, the switch determination circuit 124 outputs to the system controller 62 of the digital camera 10 through the cradle connector and the camera connector a signal for setting the mode of the camera in the PC camera mode. Upon receipt of the inputted signal from the switch determination circuit 124, the system controller 62 of the digital camera 10 sets the mode of the digital camera 10 in the PC camera mode.

30 [0061]

On the other hand, as shown in Figure 10(b), the switch determination circuit 124 detects that the foldable leg 402 is folded by receiving the OFF signal from the switch 412, and determines that the digital camera 10 is held vertically. By receiving the OFF signal from the switch 412, the switch determination circuit 124 outputs to the system controller 62 of the digital camera 10 through the cradle connector and the camera connector a signal for setting the mode of the camera in the storage mode. Upon receipt of the inputted signal from the switch determination circuit 124, the system controller 62 of the digital camera 10 sets the mode of the digital camera 10 in the storage mode.

[0062]

Like the cradle 100 according to the first embodiment, the cradle 400 is provided with the power switch, the DC jack, the USB jack, etc. If the digital camera 10 is mounted on the cradle 400, the USB jack of the cradle 400 is connected to the USB controller 72 of the digital camera 10 through the cradle connector and the camera connector, and the DC jack is connected to the charging circuit and the switch circuit 74 through the cradle connector and the camera connector as the cradle 100 according to the first embodiment.

[0063]

Thus, in the digital camera system according to the present embodiment, the storage mode and the PC camera mode can be automatically switched according to the holding status of the digital camera 10 mounted on the cradle 400, thereby eliminating the laborious operations on the camera side, and improving the operability.

[0064]

Furthermore, the user can check the currently set mode of the digital camera 10 only by checking the posture of the digital camera 10 mounted on the cradle 400.

[0065]

In the above-mentioned embodiments, an example of the digital camera 10 connecting to a personal computer through a cradle is described, but a connection to a television set, etc. by providing an A/V jack for the cradle can be acceptable. In this case, for example, the digital camera 10 is configured such that the shooting mode and the playback mode can be switched according to the tilt angle or the mounting direction, and that the playback button 34 and the reverse button 36 provided on the top surface can function only in the playback mode.

[0066]

In the above-mentioned embodiments, only two modes, that is, the PC camera mode and the storage mode, can be selected as the mode of the camera, but any other appropriate modes can be selected. In this case, for example, if three modes can be  
5 selected, the digital camera mounted on the cradle is configured such that the tilt angle can be varied at three levels.

[0067]

Furthermore, a plurality of modes can be selected by a combination of the tilt angle and the mounting direction of the digital camera mounted on the cradle.

10 [0068]

[Advantages of the Invention]

As described above, according to the present invention, the functions of the digital camera can be switched for the external equipment according to the tilt angle or the direction of the digital camera mounted on the cradle. Thus, laborious setting  
15 operations are eliminated, and the operability can be improved. Additionally, according to the tilt angle of the digital camera mounted on the cradle, the current settings can be immediately checked.

[Brief Description of the Drawings]

[Figure 1]

20 A perspective view showing the first embodiment of the digital camera system according to the present invention.

[Figure 2]

A front view of the appearance of the digital camera and the cradle.

[Figure 3]

25 A back view of the appearance of the digital camera and the cradle.

[Figure 4]

A top view of the digital camera.

[Figure 5]

A bottom view of the digital camera.

30 [Figure 6]

A side sectional view of the cradle.

[Figure 7]

A block diagram of the outline of the internal circuits of the digital camera and the cradle.

[Figure 8]

A front view of the appearance of the digital camera and the cradle according to the second embodiment of the present invention.

[Figure 9]

A bottom view of the digital camera and the plane view of the cradle according to the second embodiment of the present invention.

[Figure 10]

Sectional views of the side showing the configuration of the digital camera and the cradle according to the third embodiment of the present invention;

[Description of Symbols]

10...DIGITAL CAMERA; 12...TAKING LENS; 14...ELECTRIC FLASH LIGHT;  
16...FINDER WINDOW; 18...FINDER; 20...CROSS BUTTON; 22...MENU/OK  
15 BUTTON; 24...CANCEL BUTTON; 26...LIQUID CRYSTAL MONITOR;  
28...SHUTTER-RELEASE BUTTON; 30...POWER BUTTON; 32...MODE SWITCH;  
34...PLAYBACK BUTTON; 36...REVERSE BUTTON; 38...CAMERA CONNECTOR;  
52...IMAGE-CAPTURING UNIT; 54...SIGNAL PROCESSING UNIT; 58...IRIS;  
60...SOLID-STATE IMAGE PICKUP DEVICE; 62...SYSTEM CONTROLLER;  
20 64...AMPLIFIER; 66...A/D CONVERTER; 68...SIGNAL PROCESSING UNIT;  
70...COMPRESSING UNIT; 72...USB CONTROLLER; 74...CHARGING CIRCUIT;  
76...RECHARGEABLE BATTERY; 78...DC-DC CONVERTER; 80...MEMORY  
CONTROLLER; 82...MEMORY CARD; 100...CRADLE; 102...CRADLE BODY;  
104...CAMERA MOUNTING UNIT; 106...RECESS; 106A...INNER SIDE FRONT;  
25 106B...INNER SIDE BACK; 108...DC JACK; 110...USB JACK; 112...CRADLE  
CONNECTOR; 114...BEARING MEMBER; 118...SHAFT; 122A...FRONT SWITCH;  
122B...BACK SWITCH; 124...SWITCH DETERMINATION CIRCUIT;  
200...PERSONAL COMPUTER; 210...USB CABLE; 300...CRADLE;  
302...MOUNTING UNIT; 304A, 304B...HOLE; 306A, 306B...SWITCH;  
30 308...PROJECTION; 400...CRADLE; 402...LEG; 404...MOUNTING UNIT;  
406...RECESS; 408...ROTATION AXIS; 410...BEARING; 412...SWITCH

[Title of the Document] Abstract

[Abstract]

[Problem to be Solved]

To provide a digital camera with improved operability.

5 [Solution]

A digital camera 10 is mounted on a camera mounting unit 104 of a cradle 100, and supported as swayable. When the digital camera 10 is tilted forward, a front switch 122A is turned on, and a command to change into a storage mode is issued from a switch determination circuit 124 to the digital camera 10. When the digital camera is tilted  
10 backward, a back switch 122B is turned on, and a command to change into a PC camera mode is issued from the switch determination circuit 124 to the digital camera 10.

[Selected Drawing] Figure 6



FIG.1

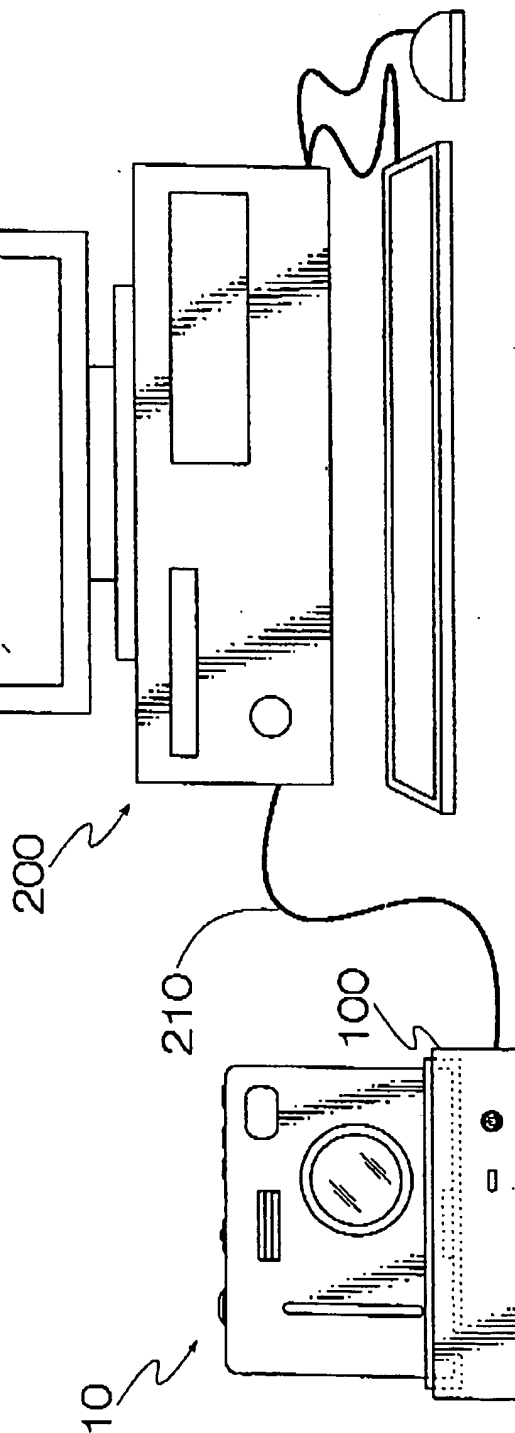


FIG.2

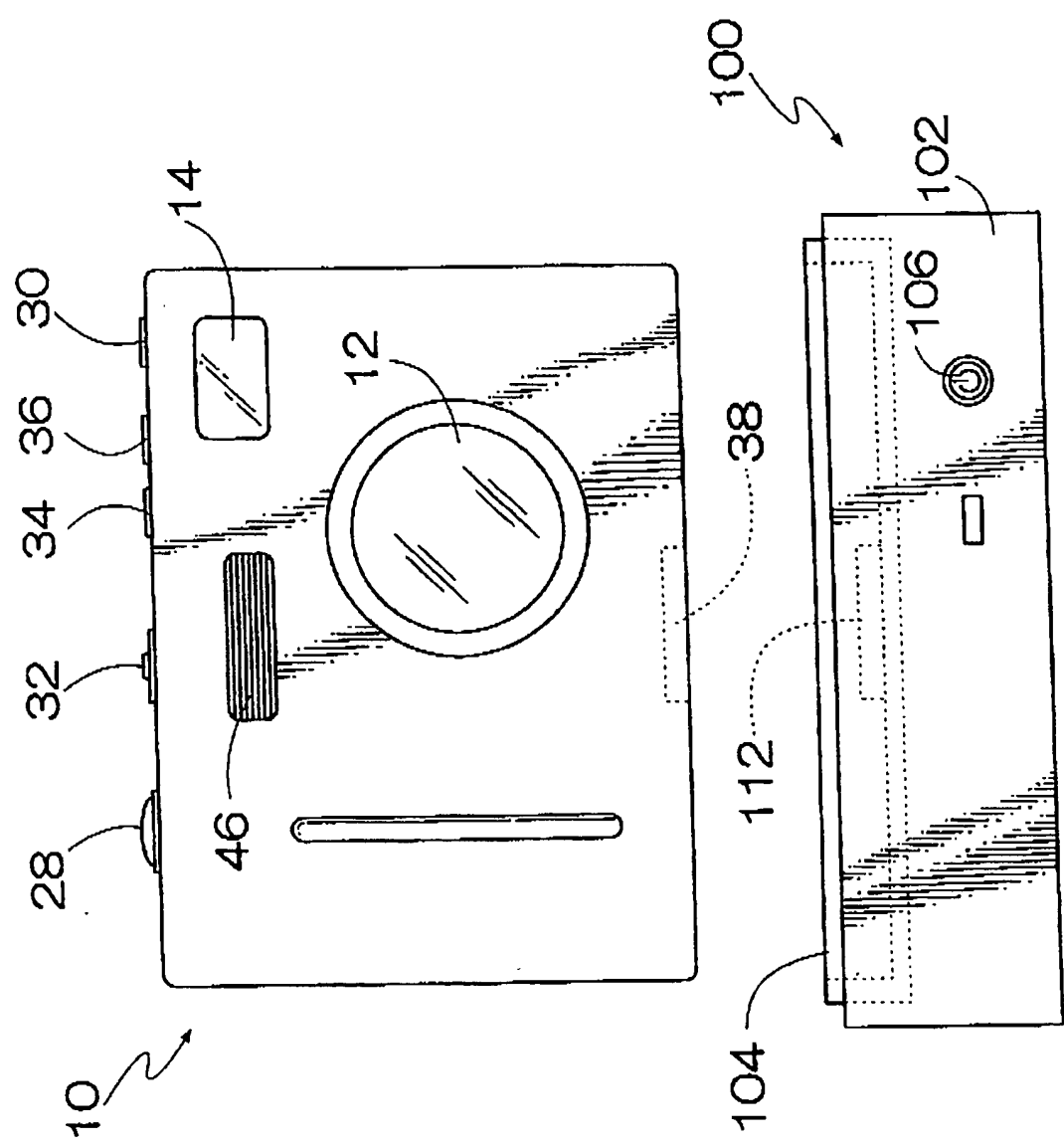


FIG. 3

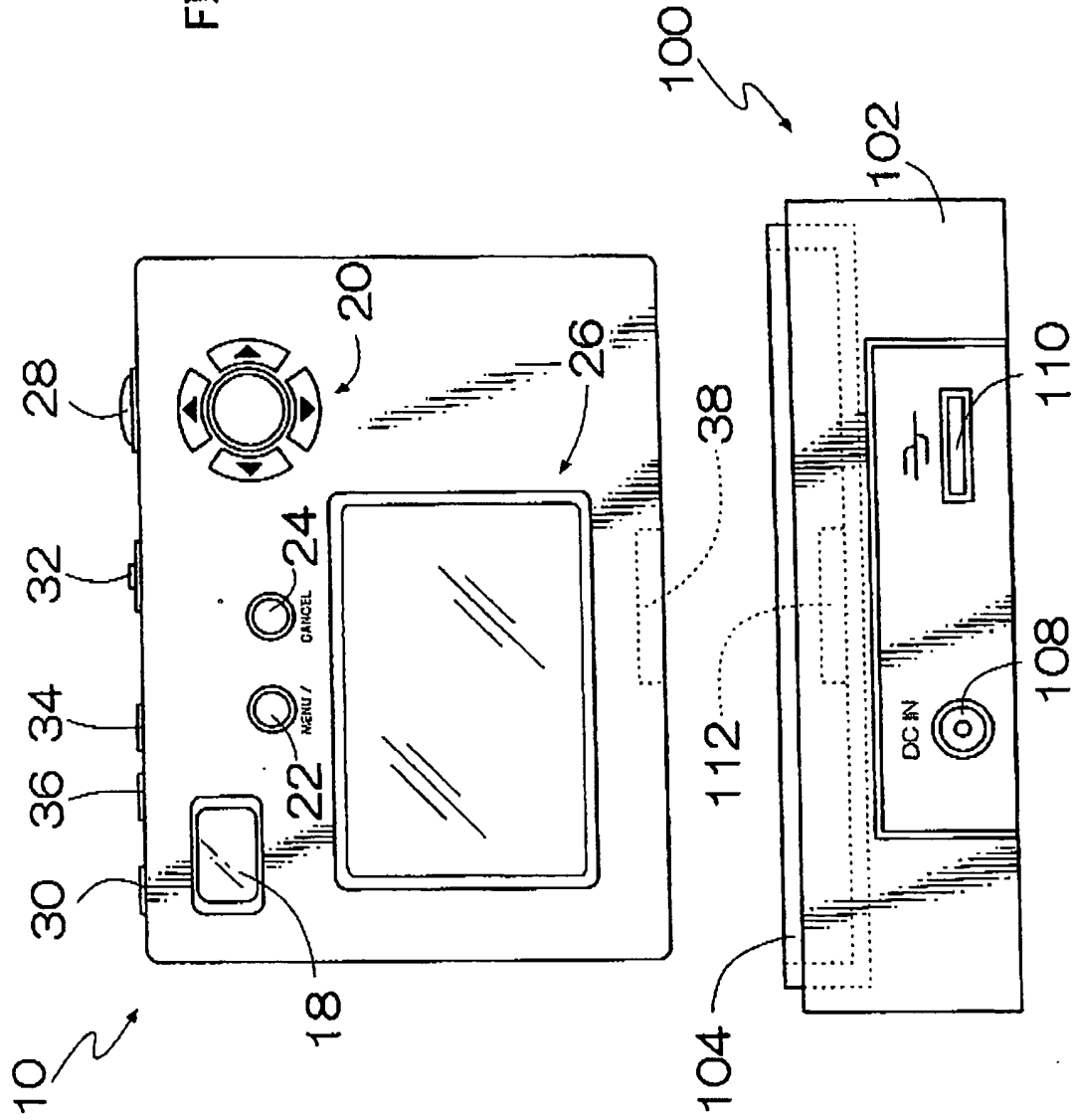




FIG. 4

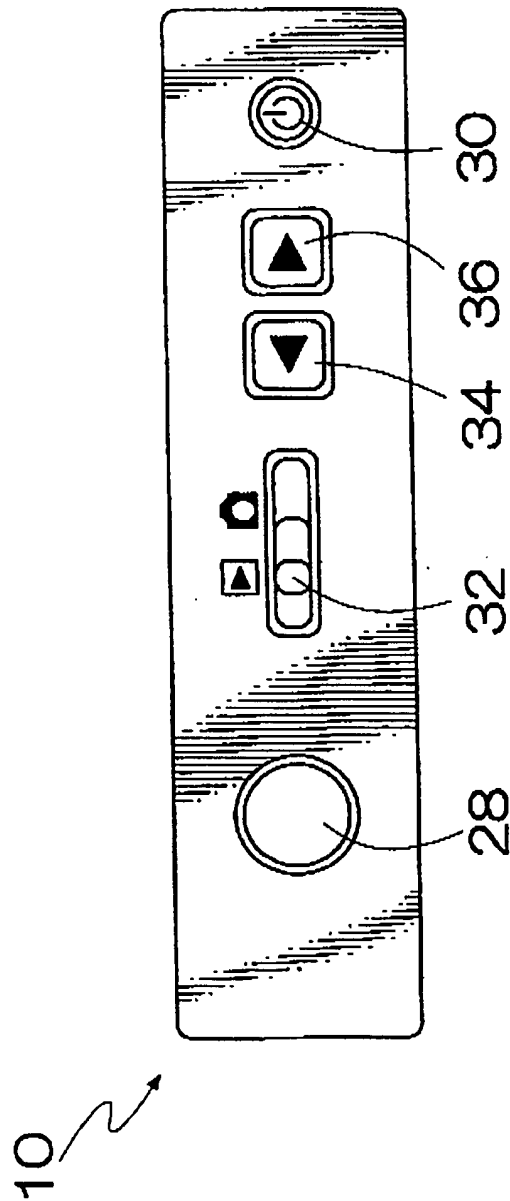
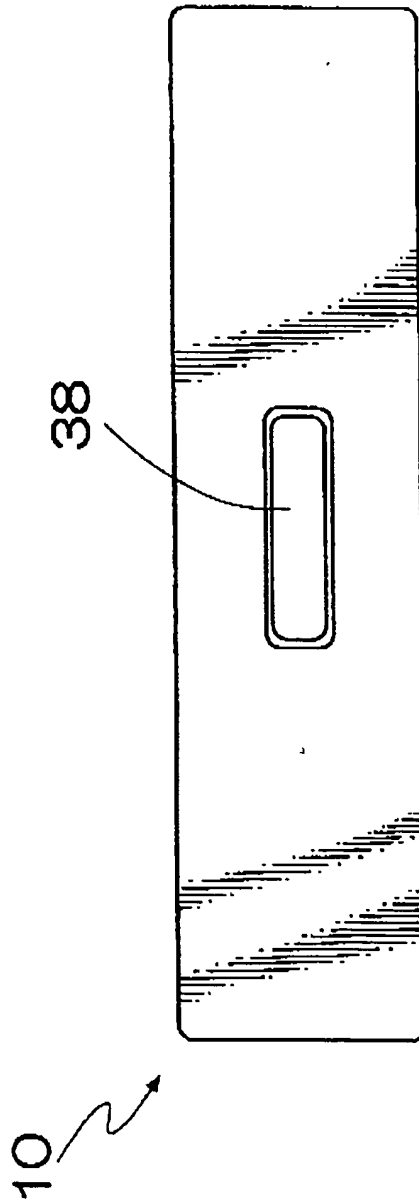


FIG.5



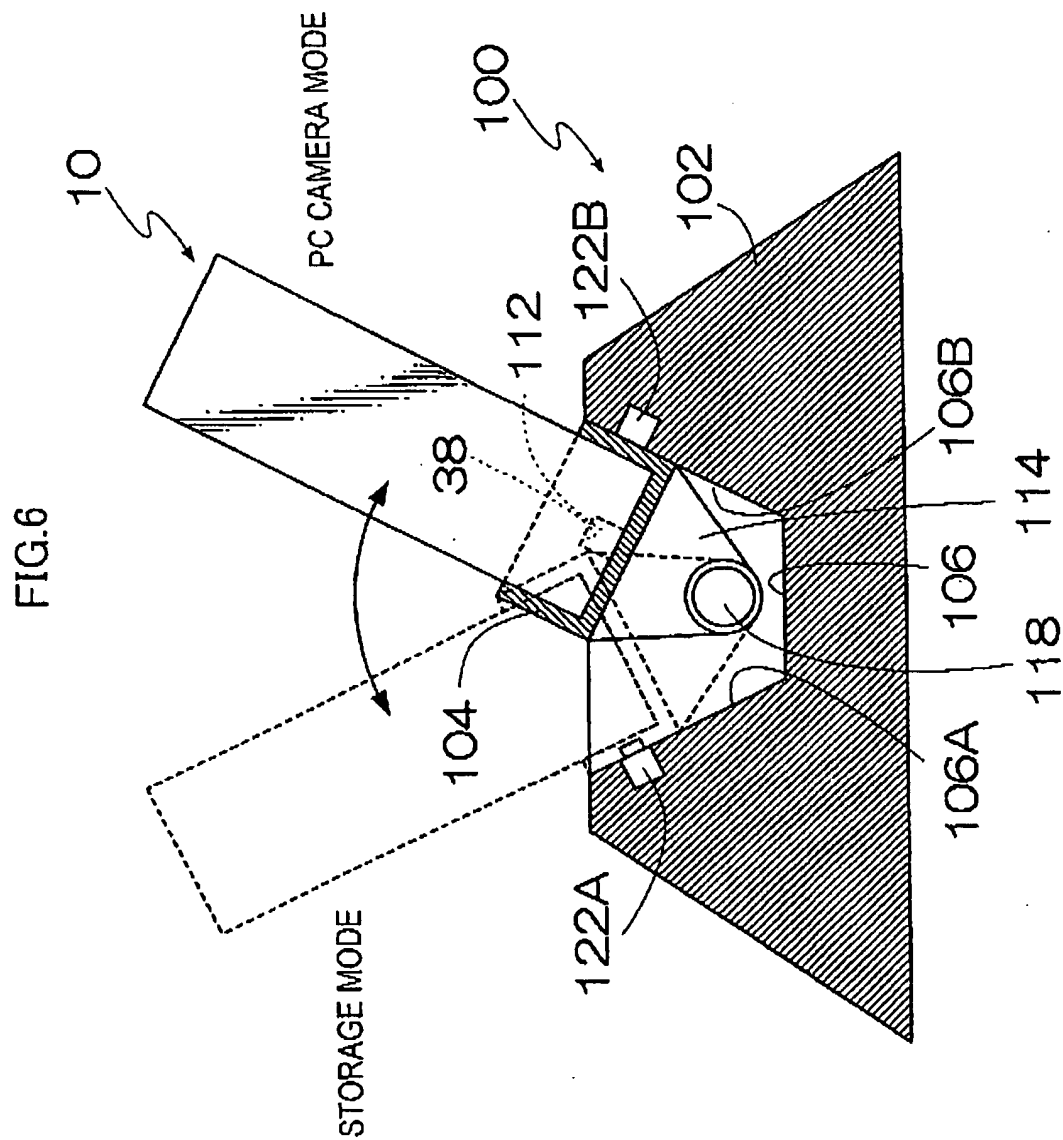
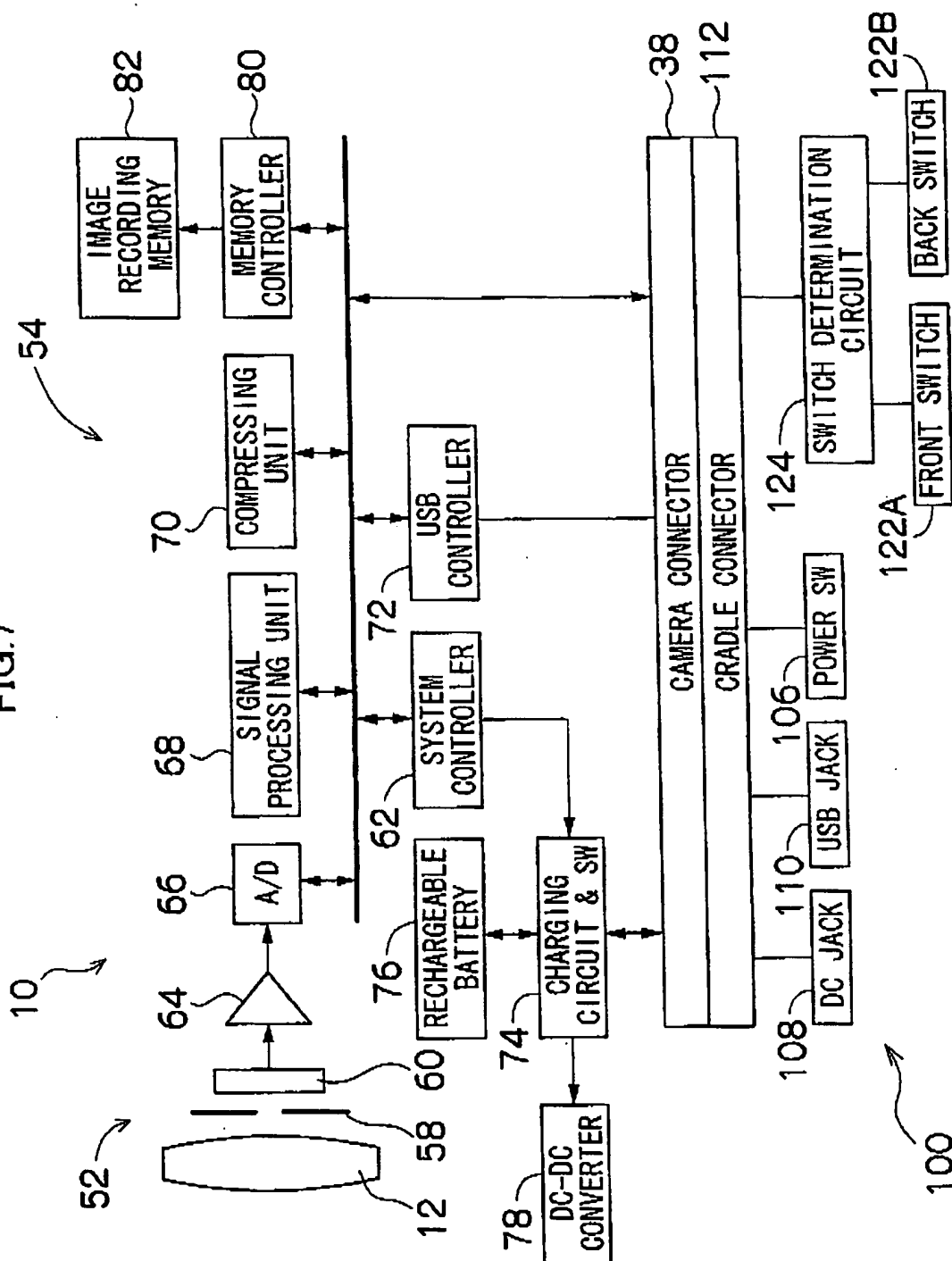


FIG. 7



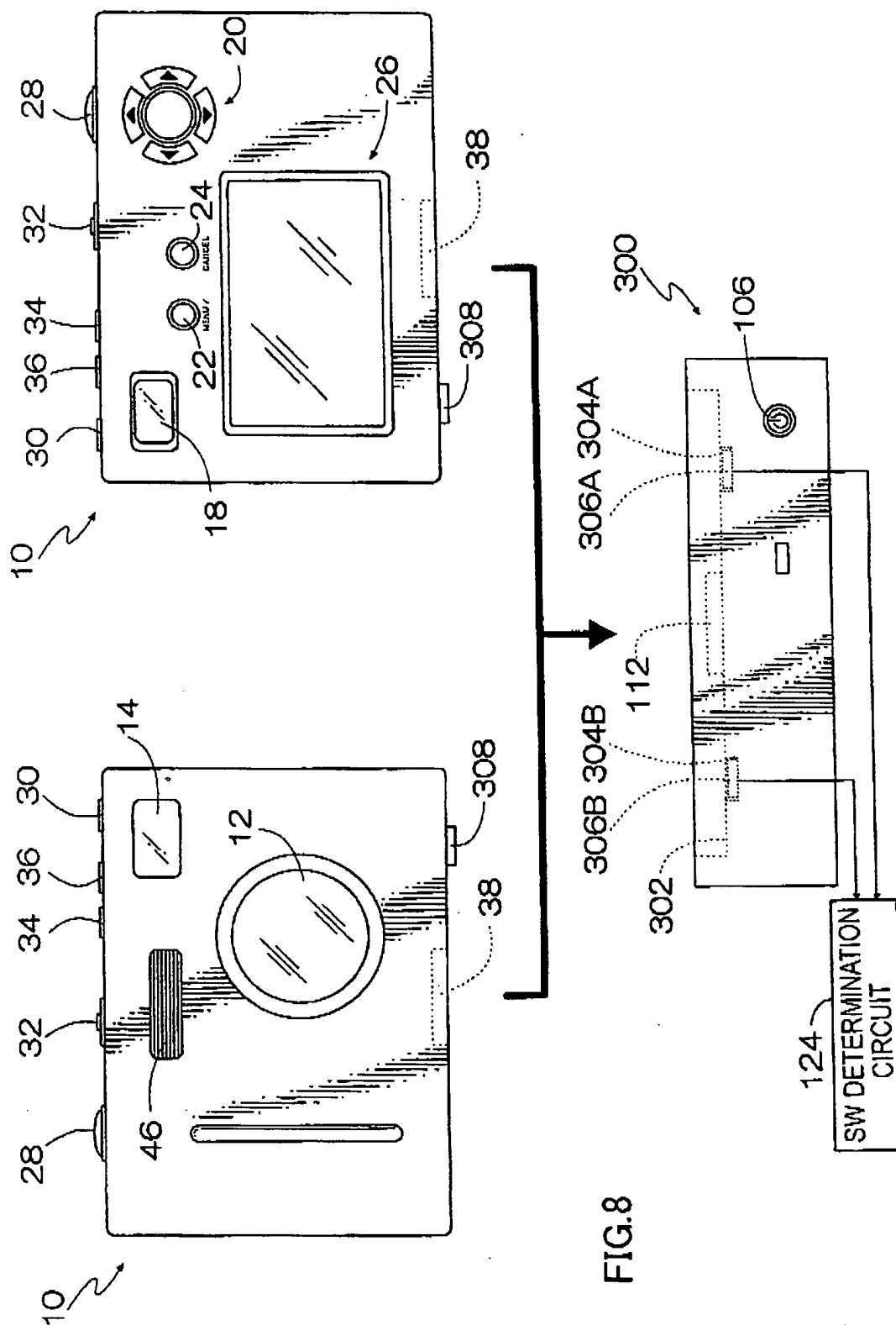


FIG. 9

